

## CLAIMS:

1. A method for imaging anatomical parts of the human anatomy by means of an X-ray apparatus, the method comprising the steps of

- acquiring at least one initial projection image of at least the region of interest of the anatomy,

5 - determining the positions and/or orientations of the anatomical parts in the region of interest from the at least one initial projection image and/or from other sources of information,

- determining the optimum imaging parameters for the anatomical parts from their positions and/or orientations, and

10 - acquiring images of the anatomical parts while using the optimum imaging parameters.

2. A method as claimed in claim 1, characterized in that the optimum exposure and/or collimator settings are determined from the positions, orientations and/or appearance of the anatomical parts in the at least one initial projection image.

3. A method as claimed in claim 1, characterized in that the optimum projection lines for acquiring projection images of the anatomical parts are determined from the positions and/or orientations of the anatomical parts.

4. A method as claimed in claim 1, characterized in that the at least one initial projection image is taken as a frontal image and/or a lateral image.

5. A method as claimed in claim 1, characterized in that the at least one initial projection image is an overview image reconstructed from at least two projection images.

6. A method as claimed in claim 1,  
characterized in that an optimum projection line is determined for each anatomical part in the  
region of interest.

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7. A method as claimed in claim 1,  
characterized in that the acquired images of the anatomical parts are displayed separately or  
are combined to form a composite image for display.

10 8. A method as claimed in claim 1,  
characterized in that the method is used for imaging the human spine and comprises the steps  
of:

- acquiring at least one initial projection image of at least the region of interest  
of the spine,

15 - determining the positions and/or orientations of vertebrae in the region of  
interest from the at least one initial projection image,

- determining the optimum imaging parameters for the vertebrae from their  
positions and/or orientations, and

- acquiring images of the vertebrae while using the optimum imaging  
20 parameters.

9. An X-ray apparatus for imaging the anatomical parts of the human anatomy, in  
particular the human spine, having an x-ray source and an x-ray detector facing the x-ray

25 source, the x-ray source and the x-ray detector being movable with respect to each other and  
with respect to the patient so as to enable the acquisition of projection images of the

anatomical parts from different positions and/or orientations, the x-ray apparatus comprising

- a control unit for controlling the x-ray apparatus such that at least one initial  
projection image of at least the region of interest of the anatomy is acquired, and

- a processing unit for determining the position and/or orientation of anatomical  
30 parts in the region of interest from the at least one initial projection image and/or from other

sources of information and for determining the optimum imaging parameters for the  
anatomical parts from their positions and/or orientations, the optimum imaging parameters

being used by the control unit to control the x-ray apparatus such that images of the  
anatomical parts using the optimum imaging parameters are acquired.